# Air Quality Summary—June 2012

## Baton Rouge Area

### OZONE

There were five (5) days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in the Baton Rouge area during the month of June, 2012. Please see the table below for more detailed information on statewide ozone readings and the graph on page two for daily air quality index levels in the Baton Rouge area during June.

*Air Quality Action Days (ozone): June 27 and 28*

### $PM_{2.5}$

There were no violations of the NAAQS for $PM_{2.5}$ in the Baton Rouge area during the month of June, 2012. Please see the chart and table on the next page for detailed information on $PM_{2.5}$ levels throughout the state.

## Other Areas of the State

### OZONE

There were four (4) days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in areas of the state other than Baton Rouge during the month of June, 2012. Please see the table below for more detailed information on air quality levels during the month of June.

*Air Quality Action Days (ozone): Shreveport , New Orleans and Lake Charles— June 27 and 28*

### $PM_{2.5}$

There were no violations of the NAAQS for $PM_{2.5}$ during the month of June, 2012. Please see the chart and table on the next page for detailed information on $PM_{2.5}$ levels throughout the state.

**Statewide 8-HR Ozone Readings**
**Above 75 ppb - June 2012**

| DATE | AQI | 8-HR OZONE Concentration (ppb) | MONITORING SITE |
|---|---|---|---|
| **6/1/2012** | 111 | 80 | Thibodaux |
| **6/2/2012** | 135 | 89 | Port Allen |
| | 124 | 85 | Capitol |
| | 114 | 81 | LSU |
| | 109 | 79 | Lafayette |
| | 104 | 77 | Convent |
| | 101 | 76 | Bayou Plaquemine |
| **6/3/2012** | 104 | 77 | Madisonville |
| **6/26/2012** | 101 | 76 | Thibodaux |
| **6/27/2012** | 127 | 86 | Pride |

| DATE | AQI | 8-HR OZONE Concentration (ppb) | MONITORING SITE |
|---|---|---|---|
| **6/27/2012 (Cont'd)** | 114 | 81 | Westlake |
| | 111 | 80 | French Settlement |
| | 109 | 79 | New Roads |
| | 109 | 79 | Vinton |
| | 109 | 79 | Dixie |
| | 101 | 76 | Hahnville |
| **6/29/2012** | 104 | 77 | LSU |
| | 104 | 77 | Garyville |
| **6/30/2012** | 109 | 79 | Pride |

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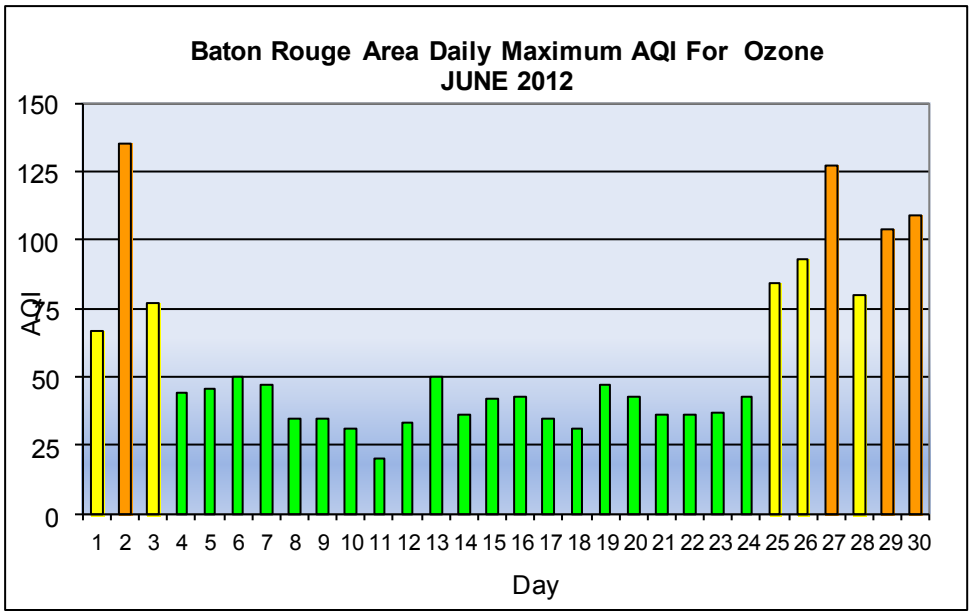
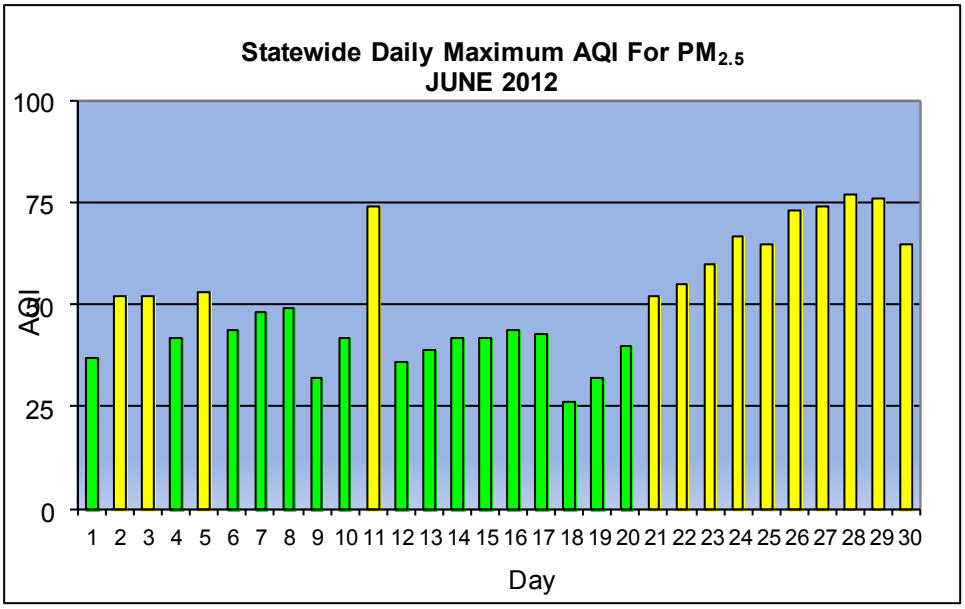
AQI AIR QUALITY INDEX | Good | Moderate | Unhealthy for Sensitive Groups | Unhealthy | Very Unhealthy | Hazardous




| Statewide High PM2.5 24-Hour Average Readings - JUNE 2012 | | | |
|---|---|---|---|
| DAY | UG/m3 | AQI | SITE |
| 1 | 11.5 | 37 | Thibodaux |
| 2 | 16 | 52 | Chalmette Vista |
| 3 | 16 | 52 | Chalmette Vista |
| 4 | 13 | 42 | Monroe |
| 5 | 16.3 | 53 | Alexandria |
| 6 | 13.5 | 44 | City Park |
| 7 | 14.8 | 48 | Alexandria |
| 8 | 15 | 49 | Monroe |
| 9 | 10 | 32 | Monroe |
| 10 | 13 | 42 | Chalmette Vista |
| 11 | 25 | 74 | Chalmette Vista |
| 12 | 11 | 36 | Chalmette Vista |
| 13 | 12 | 39 | Monroe |
| 14 | 13 | 42 | Chalmette Vista |
| 15 | 13 | 42 | Chalmette Vista |
| 16 | 13.4 | 44 | Alexandria |
| 17 | 13.2 | 43 | Alexandria |
| 18 | 8 | 26 | Monroe |
| 19 | 10 | 32 | Chalmette Vista |
| 20 | 12.2 | 40 | Alexandria |
| 21 | 16 | 52 | Monroe |
| 22 | 17 | 55 | Monroe |
| 23 | 19.2 | 60 | Alexandria |
| 24 | 21.8 | 67 | Shreveport Airport |
| 25 | 21 | 65 | Capitol |
| 26 | 24.6 | 73 | French Settlement |
| 27 | 25 | 74 | Chalmette Vista |
| 28 | 26 | 77 | Monroe |
| 29 | 25.6 | 76 | Alexandria |
| 30 | 21 | 65 | Monroe |

# Baton Rouge Climate Summary—June 2012

*Prepared by: Jay Grymes

(based on available preliminary data as of July 30, 2012)

June 2012's average temperature was 81.8°F, 0.7° above the monthly norm. While the June temperature departure appears relatively modest, June 2012 ranks among the top 25% of all Junes since 1905 in terms of warmth. However, it is worth noting that each of the previous six Junes -- from 2006 through 2011 -- was warmer than June 2012. June marks the seventh consecutive month with above-normal temperatures at Baton Rouge's Metro Airport. The run of six straight warmer-than-normal months makes the first half of 2012 the "warmest" first half of any year for Baton Rouge since at least 1930!

Daily maximum temperatures during June averaged 91.6°F (0.7° above average), with daily highs reaching 90° or above on 17 days (interestingly, that is 1 day less than occurred during May 2012). The month's run of "hottest" days came during the last 10 days of June: highs topped 90° on all 10 days, with highs of 95° or more during June 23-29. That spell also included 101° readings on June 25th and 26th, both registering as all-time record highs for the two respective dates.

June minimum temperatures averaged 72.0°F (also 0.7° above the norm). The month's lowest minimum was 59°F, recorded on June 2nd. Over the course of the month, minimums were in the mid to upper 70°s on 8 dates, including 5 of the final 6 days of the month. A run of mid to upper 70°s for morning minimums to close out the month also demonstrated the increasing influence of Gulf air masses across the region, with elevated dew point temperatures and increased humidity adding to the summer discomfort.

CDDs are used as a proxy for energy-demand for indoor human comfort. The warmth of 2012 has driven Cooling Degree-Days (CDDs) more than 20% above normal for the first half of the year -- based on Metro Airport temperatures -- and has established the largest accumulated CDD total for the first six months of any year (since at least 1930).

Table 1: Average "daylight hours" sky conditions (to 12,000 ft) during June 2012, based on automated ASOS observations from Baton Rouge's Metro Airport. (Data estimated for June 8.)

| Sky Condition: Sunrise to Sunset (Sky Coverage) | Clear to Mostly Sunny (0/10ths – 3/10ths) | Partly Cloudy / Partly Sunny (4/10ths – 6/10ths) | Mostly Cloudy to Cloudy (7/10ths – 10/10ths) |
|---|---|---|---|
| No. Days | 23 | 4 | 3 |

June's 23 days of "fair to clear skies" continued the trend of warmer-than-normal weather that has been the benchmark for 2012. The impact of summer season "fair to clear skies" is readily apparent during the notably hot final 10 days of June. In fact, had it not been for the heat load during those final 10 days, June might well have closed out a tad cooler-than-normal.

Sunrise-to-sunset periods for Baton Rouge during June -- excluding 'Civil Twilight' -- range from 14.0 hours (June 1) to 14.1 hours (June 30), with the Northern Hemisphere's Summer Solstice (first day of summer) falling on June 20th.

# Baton Rouge Climate Summary—June 2012

*Prepared by: Jay Grymes

(based on available preliminary data as of July 30, 2012)

Table 2: June 2012 rainfall for selected sites across the greater Baton Rouge metro area. (Data are preliminary and provided courtesy of the National Weather Service, the LSU Southern Regional Climate Center, the LSU AgCenter, and the CoCoRaHS Volunteer Network.)

| Rainfall-Recording Site | Monthly Rainfall | Monthly DFN | No. Days ≥ 0.01" | No. Days ≥ 1.00" |
|---|---|---|---|---|
| *NWS Cooperative Network Sites* | | | | |
| ***BR – Metro Airport*** | ***5.50"(e)*** | ***-0.91"*** | ***8*** | ***3(e)*** |
| BR - Concord Estates | 9.24" | +3.04" | 12 | 2 |
| BR - Sherwood Forest | 7.95" | +1.96" | 13 | 4 |
| Clinton | 1.98"***(i)*** | M | M | M |
| Denham Springs | 5.22" | -0.70" | 11 | 2 |
| Dutchtown | 7.27" | -- | 12 | 2 |
| Gonzales | 6.44" | +0.39" | 11 | 3 |
| Livingston | 3.21" | -2.57" | 8 | 0 |
| New Roads | 2.00" | -2.25" | 5 | 0 |
| Plaquemine | 7.94" | +2.90" | 13 | 4 |
| Port Allen | 8.00" | +2.64" | 12 | 3 |
| St. Francisville | 3.50" | -0.85" | 9 | 0 |
| *CoCoRaHS Volunteer Observers* | | | | |
| Shenandoah 2.1 W (LA-EB-18) | 5.35" | -- | 11***(e)*** | 2 |
| Shenandoah 1.5 E (LA-EB-22) | 4.61" | -- | 12***(e)*** | 1 |
| Shenandoah 0.8 W (LA-EB-36) | 4.99" | -- | 10 | 2 |
| Monticello 3.0 ENE (LA-EB-19) | 7.79" | -- | 13 | 3 |
| Monticello 3.0 SSW (LA-EB-20) | M | -- | M | M |
| Monticello 4.6 NNE (LA-EB-31) | 6.40" | -- | 10 | 1 |
| Baton Rouge 2.7 SW (LA-EB-2) | 10.21" | -- | 12 | 3 |
| Baton Rouge 3.5 E (LA-EB-14) | 9.25" | -- | 10***(e)*** | 3 |
| Baton Rouge 2.5 E (LA-EB-27) | 9.28" | -- | 12 | 4 |
| Baton Rouge 4.3 S (LA-EB-41) | 5.94" | -- | 12 | 1 |
| Baton Rouge 1.4 WSW (LA-EB-46) | 7.99" | -- | 11 | 3 |
| Baton Rouge 5.3 S (LA-EB-47) | 7.73" | -- | 9 | 3 |
| Baton Rouge 2.1 S (LA-EB-48) | 9.24" | -- | 12 | 2 |
| Inniswold 2.8 S (LA-EB-42) | 3.55" | -- | 11 | 0 |
| Brownfields 5.8 NE (LA-EB-9) | 2.87" | -- | 9 | 0 |
| Zachary 3.5 WNW (LA-EB-28) | 3.55" | -- | 7 | 1 |
| Gonzales 4.0 S (LA-AS-5) | 4.14" | -- | 11 | 2 |
| Gonzales 1.8 NE (LA-AS-9) | 5.88" | -- | 11 | 2 |
| Prairieville 1.8 NW (LA-AS-10) | 4.23" | -- | 12 | 2 |
| Port Vincent 4.4 W (LA-AS-2) | 3.00" | -- | 7 | 1 |
| Wakefield 0.9 WNW (LA-WF-4) | 4.43" | -- | 8***(e)*** | 1 |
| *Additional Metro Area Sites* | | | | |
| LSU Campus (LA-EB-33) | 12.24" | -- | 13 | 3 |
| WAFB-TV, Downtown BR | 7.46" | -- | 11 | 2 |
| LSU AgCenter Ben Hur Farm | 7.34" | -- | 13 | 3 |
| LSU AgCenter St. Gabriel | 3.91" | -- | 12 | 1 |

DFN - Departure-from-Normal , "--" - Normals Not Available , M - Missing Value

***(e)*** - Estimated Value , ***(i)*** **-** Incomplete Total

# Baton Rouge Climate Summary—June 2012

*Prepared by: Jay Grymes

(based on available preliminary data as of July 30, 2012)

Baton Rouge Metro Airport's rainfall[1] for June was 5.50", nearly 1" below the long-term June normal. Tables 2 and 3 show a rather large range in monthly totals for sites across the greater Baton Rouge metro area, running from a very modest 2.00" at New Roads to a whopping 12.24" for the LSU Campus! Although local-scale variability is evident throughout the region, reports suggest that areas north and east of Baton Rouge tended towards lower June rain totals. Based on 35 sites in Table 2 (with 'complete' monthly records), metro area regional rainfall for June 2012 averaged 6.22", with a median of 5.94" -- both values below the 1981-2010 normal of 6.41" for June.

Table 3: Distribution of June 2012 rain totals based on sites (Table 2) with complete monthly records.

| No. Stations ≤ 2.00" | No. Stations 2.01" - 3.00" | No. Stations 3.01" - 4.00" | No. Stations 4.01" - 5.00" | No. Stations 5.01" - 6.00" | No. Stations ≥ 6.00" | No. Stations ≥ 10.00" |
|---|---|---|---|---|---|---|
| 1 | 2 | 5 | 5 | 5 | 17 | 2 |

The vast majority of June 2012's rains for the Baton Rouge metro area fell during the first half of the month (Fig. 1), with most of that coming between June 6-10. It was during that spell that the LSU Campus received a monster rain of 7.35" during the afternoon and evening of June 6th (LSU Climatologist Kyle Brehe estimates that most of that deluge came in a period of less than 3 hours).

June rainday counts ranged from as few as 5 days to as many as 13 days, with a median of 11 days (the long-term average for June is 11.2 days). Of the 35 sites, all but 5 recorded at least one day with more than 1" of rain, with 13 stations recording 3 to 4 days with 1" of rain or more (the median for the 35 sites was 2 days during June with 1" or more of rain).

June 2012 reports from the Baton Rouge Metro Airport ASOS weather platform included[1]:

- 7 days with thunder (June 6-9, 14, 15, & 18), compared to a Metro Airport average of 10.4 days;
- 9 days with fog, including a brief period of "dense" fog (visibility < 1/4-mile) on June 6th; and
- 9 days with smoke and/or haze (June 2, 11, 14, 19, 22, 23, 27, 28 & 30).

Daily wind speeds[1] at Metro Airport during June 2012 averaged 5.3 mph, slightly below the 28-year long-term June average of 5.7 mph. (Along the Gulf Coast, average daily wind speeds show a declining trend through the summer months, with the climatological minimum for the year occurring in August.)

Daily winds during June averaged below 10.0 mph on all thirty days[1]. June daily winds averaged less than 5.0 mph on 11 days, including 6 of the last 10 days of the month. Daily winds averaged under 3.0 mph on 3 days -- June 13, 14 & 24 -- essentially equivalent to "near calm" conditions. Peak winds during the day did climb above 20 mph on 20 of the 30 days during June, with a monthly peak wind of 32 mph recorded on June 6th.

[1]Observations from Metro Airport are incomplete for June 7-8 and June 15, each of which were potentially stormy and windier days than indicated by the available hourly data.

*Drought Status:*
June's 'mixed bag' of rainfall totals across metro Baton Rouge was sufficient to keep most of the local area posted as "near normal" in terms of drought status through the month of June and into early July (Fig. 3). June rains, especially during the second week of the month (Fig. 1), were more than adequate for most Baton Rouge area communities in maintaining sufficient soil moisture for the remainder of the month. However, (Table 2) a handful of metro area locations reported rains that were far below the June regional average, and pockets of moisture-stressed landscapes are evident in the region.

*Tropical Outlook:*
The record-tying start of the 2012 Hurricane Season (with two May storms) was followed by a relatively active June, with two additional 'named' storms developing in the basin. With two storms in May and two in June, the 2012 Hurricane Season is off to the 'fastest' start ever! June's *Chris* became the season's first hurricane and as such, a surprise for many -- not so because of the time of year, but because *Chris* was so far north (north of 40°N latitude) and over waters that might normally be considered too cool to support hurricane development. In addition to *Chris*, a misbehaving Tropical Storm *Debby* became the season's first Gulf storm -- 'misbehaving' because of the difficulty in forecasting *Debby's* future track while she meandered over the east-central Gulf for two days, briefly prompting an "alert" status for the Bayou State.

A handful of tropical forecasting groups issued seasonal updates during late May and June, and many increased their forecasted storm counts for the season by one or two 'named' systems. But the consensus still calls for a far-less-active season (in terms of the total number of 'named' storms) compared to 2010 and 2011. Atlantic SSTs (sea-surface temperatures) are not expected to be as warm as those observed during the past two tropical seasons, and indicators continue to point to the onset of *El Niño* conditions in the eastern equatorial Pacific in the coming weeks. Historically, tropical activity over the Atlantic is decreased during periods when an *El Niño* is present -- identified by warmer-than-normal SSTs over the eastern equatorial Pacific. *El Niños* are associated with greater mid- and upper-level wind shear over the Atlantic Basin, and increased wind shear inhibits tropical system development over the basin.

*Extended Outlook:*
NWS Climate Prediction Center (CPC) forecasts for the late summer and early fall suggest a tendency towards continued warmer-than-normal weather in the coming months. The outlook for August-thru-October ('ASO') suggests nearly a 40% chance for significantly warmer-than-normal weather for the three-month period, with less than a 3-in-10 chance for temperatures to be significantly cooler-than-normal. The ASO outlook for rainfall suggests an ever-so-slight leaning towards a 'normal-to-wet' late summer and early fall.

It should be remembered that summer season forecast skill for temperatures is not especially strong for the Gulf Coast region, and the skill is rather poor for seasonal rainfall. A large part of the seasonal forecast limitations for the Gulf Coast region at this time of year can be attributed to easterly wave and tropical system activity. As we know all too well in south Louisiana, over the course of a few days a tropical storm or hurricane can deliver the equivalent of two to three months' worth of rain!

Figure 1: June 2012 *Daily Maximum and Minimum Temperatures and Precipitation* from the Baton Rouge Metro Airport ASOS.

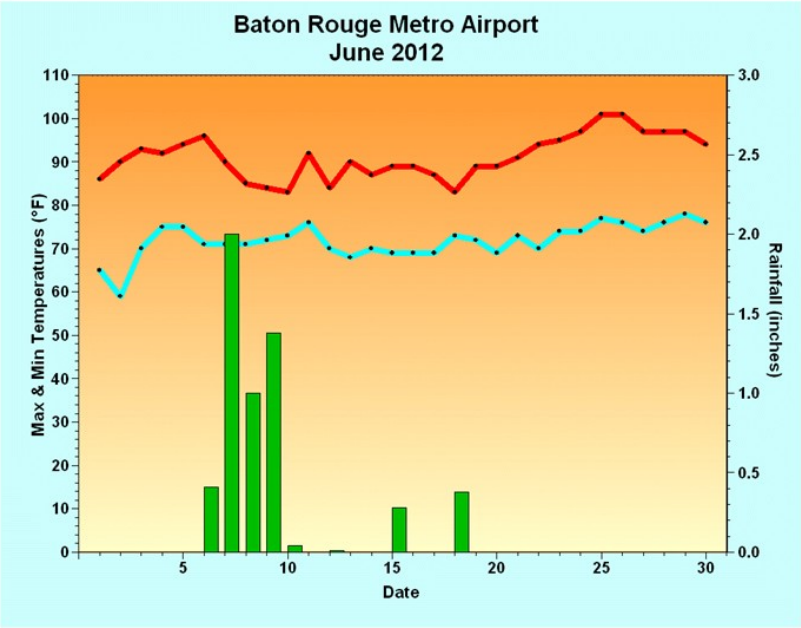



Figure 2: June 2012 *Daily Average Solar Radiation* (derived from the average of two DEQ solar radiation monitoring sites) *and Daily Maximum and Minimum Temperatures* from the Baton Rouge Metro Airport ASOS.

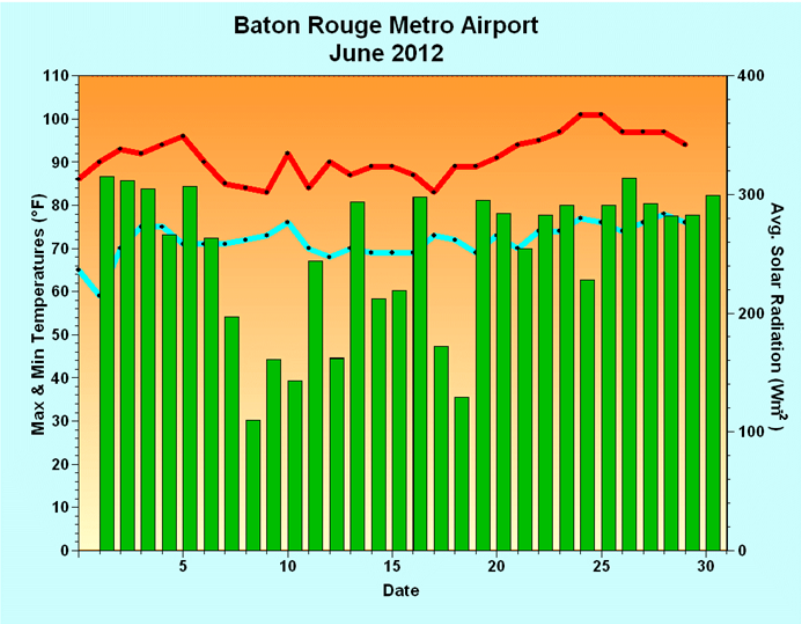
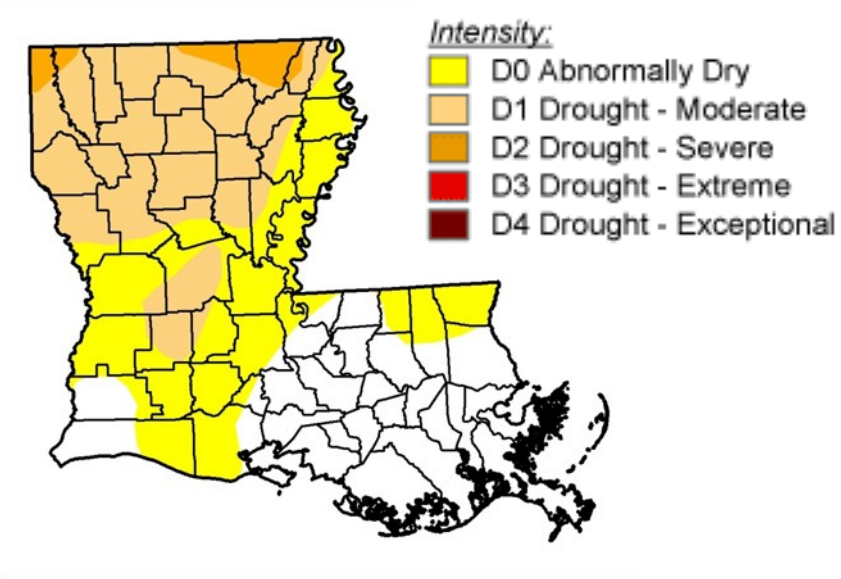


Figure 3: Weekly ***U.S. Drought Monitor*** depiction for 3 July 2012.
Source: http://drought.unl.edu/DM/

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- CoCoRaHS Volunteer Network
- U.S. Drought Monitor (http://drought.unl.edu/DM/)
- NWS Climate Prediction Center (NWS/CPC)
- NWS Storm Prediction Center (NWS/SPC)
- NWS Hydrometeorological Prediction Center (NWS/HPC)
- NOAA/National Climatic Data Center (NCDC)
- WAFB-TV (Ch. 9), Baton Rouge

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